C. AMENDMENTS TO THE CLAIMS

1(Currently Amended). A device comprising:

a nanostructured anodic alumina substrate having two sides, wherein said anodic alumina substrate comprises substantially parallel nanoscale pores connecting the two sides;

wherein each side of the alumina substrate has at least one deposited layer substantially perpendicular to the nanoscale pores; and

wherein at least one of said deposited layers comprises an electrode.

2(Currently Amended). ~~The device of claim 1, wherein said device comprises a~~ A sensor comprising:

a nanostructured anodic alumina substrate having two sides, wherein said anodic alumina substrate comprises substantially parallel nanoscale pores;

wherein each side of the alumina substrate has at least one deposited layer substantially perpendicular to the nanoscale pores; and

wherein at least one of said deposited layers comprises an electrode.

3(Cancelled).

4(Cancelled).

5(Cancelled).

6(Previously presented). The device of claim 1, wherein said anodic alumina substrate comprises a sensing material inside the nanoscale pores.

7(Currently Amended). The device of claim 6, wherein said sensing material is selected from the group consisting of metals, ~~non-metals, oxides~~, boron, carbon, silicon, salts, polymers, organic compounds, and inorganic compounds.

8(Original). The device of claim 6, wherein said sensing material comprises titanium oxide.

9(Original). The device of claim 6, wherein said sensing material comprises tin oxide.

10(Original). The device of claim 6, wherein said sensing material comprises zinc oxide.

11(Previously presented). The device of claim 1, wherein said device further comprises a microheater.

12(Previously presented). The device of claim 1, wherein said device further comprises an insulating layer.

13(Cancelled).

14(Cancelled).

15(Cancelled).

16(Cancelled).

17(Previously presented). The device of claim 1, wherein the anodic alumina substrate has a thickness of 0.1 μm to 500 μm.

18(Previously presented). The device of claim 1, wherein said nanoscale pores have a diameter of 1 nm to 500 nm.

19(Previously presented). The device of claim 1, wherein said nanoscale pores are substantially uniform in diameter.

20(Previously presented). The device of claim 1, wherein said layer has a thickness in the range of 0.1 nm to 500 nm.

21(Cancelled).

22(Cancelled).

23(Cancelled).

24(Cancelled).

25(Cancelled).

26(Cancelled).

27(Previously presented). A method of making a device comprising the steps of:

forming an anodic alumina film on an aluminum substrate, wherein said anodic alumina substrate comprises substantially parallel nanoscale pores;

micromachining the anodic alumina film to obtain two surfaces by a technique selected from the group consisting of anisotropic etching and localized anodization; and

depositing at least one layer on each of the surfaces of the anodic alumina film; wherein at least one layer of the deposited layers is an electrode.

28(Cancelled).

29(Previously presented). The method of claim 27, said method comprising the step of:

depositing another material in the nanoscale pores of the anodic alumina substrate.

30(Cancelled).

31(Cancelled).

32(Cancelled).

33(Cancelled).

34(Withdrawn). A method of operation of sensor having a heater comprising of the following modes:

a passive mode, wherein heater power is turned off during the sensing;

a constant temperature mode, wherein the constant voltage, current or power is applied to a microheater during the sensing;

a temperature pulse mode; wherein a pulse of voltage, current or power is applied to the microheater during the sensing;

a temperature modulation mode, wherein a desired voltage, current or power waveform is applied to a microheater during the sensing; and

wherein a property of the sensing element is monitored to obtain sensor signal during the sensing.

35(Withdrawn). The method of claim 34 further comprising a temperature pulse mode to induce desorption of the water molecules from the sensor in a "heater on" half-cycle, and adsorption of water molecule in a "heater off" half cycle.

36(Withdrawn). The method of claim 34, where temperature modulation is performed by modulating microheater voltage at a rate of up to 20 V per second.

37(Withdrawn). The method of claim 34, where temperature pulse or temperature modulation is used to regenerate a sensor after contamination, wetting or icing.

38(Previously added). The device of claim 1, wherein said device is a gas sensor.

39(Cancelled).

40(Previously presented). The device of claim 1, wherein said device is a ceramic microdevice.

41(Previously presented). The device of claim 1, wherein said device is an array.

42(Previously presented). The device of claim 1, wherein said device is a photonic sensor.

43(Previously presented). The device of claim 1, wherein said device is an electromagnetic field sensor.

44(Previously presented). The device of claim 1, wherein said device is a biomedical sensor.

45(Previously presented). The device of claim 1, wherein said device is a bolometer.

46(Previously presented). The device of claim 1, wherein said device is a thermal sensor.

47(Previously presented). The device of claim 1, wherein said device is a magnetic sensor.

48(Previously presented). A device comprising:

a nanostructured anodic alumina substrate, wherein said anodic alumina substrate comprises substantially parallel nanoscale pores and the device functions as a microheater.

49(New). A device comprising:

a nanostructured anodic alumina substrate having two sides;

wherein said anodic alumina substrate comprises substantially parallel pores connecting the two sides;

a substance deposited in the nanoscale pores of the anodic alumina substrate;

wherein each side of the alumina substrate has at least one deposited layer; and

wherein at least one of said deposited layers comprises an electrode.

50(New). A device comprising:

a nanostructured anodic alumina substrate having two sides,

wherein said anodic alumina substrate comprises substantially parallel nanoscale pores connecting the two sides;

wherein each side of the alumina substrate has at least one deposited layer substantially perpendicular to the nanoscale pores; and

wherein at least one of said deposited layers comprises an electrode; and

wherein at least one of the deposited layers and/or the anodic alumina substrate is patterned using a mask.

51(New). A product comprising:

a nanostructured anodic alumina substrate having two sides;

wherein said anodic alumina substrate comprises substantially parallel pores connecting the two sides;

a substance deposited in the pores of the anodic alumina substrate;

wherein each side of the alumina substrate has at least one deposited layer substantially perpendicular to the nanoscale pores; and

wherein at least one of the deposited layers and/or anodic alumina substrate is patterned using a mask.

52. A product comprising the device of claim 48.

53. A product comprising the device of claim 49.

54. A product comprising the device of claim 50.